Regulatory Analysis

Notice of Intended Action to be published: Iowa Administrative Code 875—Chapter 91
"General Requirements for All Objects"

Iowa Code section(s) or chapter(s) authorizing rulemaking: 89.14
State or federal law(s) implemented by the rulemaking: Executive Order 10

Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

October 22, 2024 9 to 9:30 a.m.	Lake Conference Room 6200 Park Avenue, Suite 100 Des Moines, Iowa

Public Comment

Any interested person may submit written or oral comments concerning this Regulatory Analysis. Written or oral comments in response to this Regulatory Analysis must be received by the Division of Labor Services no later than 4:30 p.m. on the date of the public hearing. Comments should be directed to:

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Purpose and Summary

This proposed rulemaking rescinds Chapter 91 in accordance with the goals and directives of Executive Order 10. Proposed Chapter 91 requires certain design features and other safety measures for boilers and pressure vessels.

Analysis of Impact

1. Persons affected by the proposed rulemaking:

- Classes of persons that will bear the costs of the proposed rulemaking:

Owners of boilers and unfired steam pressure vessels operating in excess of 15 pounds per square inch, all low-pressure heating boilers and unfired steam pressure vessels located in places of public assembly and other appurtenances used in this state for generating or transmitting steam for power, or for using steam under pressure for heating or steaming purposes will bear the costs.

- Classes of persons that will benefit from the proposed rulemaking:

The public and anyone potentially in harm's way of a destructive failure of an "object" covered by Iowa Code chapter 89 will benefit.

2. Impact of the proposed rulemaking, economic or otherwise, including the nature and amount of all the different kinds of costs that would be incurred:

- Quantitative description of impact:

The rulemaking requires certain costs related to inspection and maintenance.

- Qualitative description of impact:

There is no known qualitative impact.

3. Costs to the State:

- Implementation and enforcement costs borne by the agency or any other agency:

The agency has costs associated with running the Elevator, Boiler, and Amusements section.

- Anticipated effect on state revenues:

The rulemaking has no anticipated fiscal impact.

4. Comparison of the costs and benefits of the proposed rulemaking to the costs and benefits of inaction:

The benefit of safe boilers and pressure vessels outweigh any costs.

5. Determination whether less costly methods or less intrusive methods exist for achieving the purpose of the proposed rulemaking:

The Department has not identified any less costly or less intrusive methods.

6. Alternative methods considered by the agency:

- Description of any alternative methods that were seriously considered by the agency:

No alternative methods were seriously considered.

- Reasons why alternative methods were rejected in favor of the proposed rulemaking:

This chapter adopts consensus standards and time-tested Iowa standards.

Small Business Impact

If the rulemaking will have a substantial impact on small business, include a discussion of whether it would be feasible and practicable to do any of the following to reduce the impact of the rulemaking on small business:

- Establish less stringent compliance or reporting requirements in the rulemaking for small business.
- Establish less stringent schedules or deadlines in the rulemaking for compliance or reporting requirements for small business.
- Consolidate or simplify the rulemaking's compliance or reporting requirements for small business.
- Establish performance standards to replace design or operational standards in the rulemaking for small business.
- Exempt small business from any or all requirements of the rulemaking.

If legal and feasible, how does the rulemaking use a method discussed above to reduce the substantial impact on small business?

The rules do not have a substantial impact on small business.

Text of Proposed Rulemaking

ITEM 1. Rescind 875—Chapter 91 and adopt the following **new** chapter in lieu thereof:

CHAPTER 91
GENERAL REQUIREMENTS FOR ALL OBJECTS

875—91.1(89) Codes and code cases adopted by reference.

91.1(1) *ASME boiler and pressure vessel codes adopted by reference.* The ASME Boiler and Pressure Vessel Code (2021), including Code Cases, is adopted by reference. Regulated objects shall be designed and constructed in accordance with the ASME Boiler and Pressure Vessel Code (2021) except for objects that meet one of the following criteria:

a. An object with an ASME stamp and National Board Registration that establish compliance with an earlier version of the ASME Boiler and Pressure Vessel Code;

b. A miniature boiler installed before March 31, 1967;

c. A power boiler or unfired steam pressure vessel installed before July 4, 1951; or

d. A steam heating boiler, hot water heating boiler, or hot water supply boiler installed before July 1, 1960.

91.1(2) *Inspection code adopted by reference.* The National Board Inspection Code (2021) is adopted by reference, and installations, alterations, and repairs after February 16, 2022, shall comply with it.

91.1(3) *Electric code adopted by reference.* The National Electrical Code, NFPA 70 (2020), is adopted by reference, and installations after April 15, 2020, shall comply with it.

91.1(4) *Piping codes adopted by reference.* The Power Piping Code, ASME B31.1 (2020), and the Building Services Piping Code, ASME B31.9 (2020), are adopted by reference, and installations after February 16, 2022, shall comply with them up to and including the first valve.

91.1(5) *Control and safety device code adopted by reference.* Controls and Safety Devices for Automatically Fired Boilers (CSD-1) (2021) is adopted by reference, and installations after December 1, 2022, shall comply with it. Reporting requirements concerning CSD-1 are set forth at rule 875—90.11(89).

91.1(6) *Mechanical code adopted by reference.* Excluding Section 701.1, Chapters 2 and 7 of the International Mechanical Code (IMC) (2021) are adopted by reference, and installations after February 16, 2022, shall comply with them.

91.1(7) *Oil burning equipment code adopted by reference.* National Fire Protection Association Standard for the Installation of Oil Burning Equipment, NFPA 31 (2020), is adopted by reference, and installations after February 16, 2022, shall comply with it.

91.1(8) *Fuel gas code adopted by reference.* National Fire Protection Association National Fuel Gas Code, NFPA 54 (2021), is adopted by reference, and installations after February 16, 2022, shall comply with it.

91.1(9) *Liquefied petroleum gas code adopted by reference.* National Fire Protection Association Liquefied Petroleum Gas Code, NFPA 58 (2020), is adopted by reference, and installations after April 15, 2020, shall comply with it.

91.1(10) *Boiler and combustion systems hazards code adopted by reference.* National Fire Protection Association Boiler and Combustion Systems Hazards Code, NFPA 85 (2019), is adopted by reference, and installations after April 15, 2020, shall comply with it.

875—91.2(89) Safety appliance.

91.2(1) No person shall remove, disable or tamper with a required safety appliance except for the purpose of repair or inspection.

91.2(2) An object shall not be operated unless all required and installed safety appliances are properly functional and operational.

875—91.3(89) Blowoff equipment. The blowdown from an object that enters a sanitary sewer system or blowdown that is considered a hazard to life or property shall pass through blowoff equipment that will reduce pressure and temperature. The temperature of the water leaving the blowoff equipment shall not exceed 150 degrees F. If the local jurisdiction has a temperature limit of less than 150 degrees F, the temperature of the water leaving the blowoff equipment shall comply with the limit set by the local jurisdiction. The pressure of the water leaving the blowoff equipment shall not exceed 5 psig. The blowoff piping and fittings between the object and the blowoff tank shall comply with the construction or installation code. All materials used in the fabrication of object blowoff equipment shall comply with the construction or installation code. All blowoff equipment shall be equipped with openings to facilitate cleaning and inspection.

875—91.4(89) Location of discharge piping outlets. The discharge from safety valves, safety relief valves, blowoff pipes and other outlets shall comply with the following:

91.4(1) The discharge piping terminates at a safe point of discharge.

91.4(2) When the safety valve or temperature and pressure relief valve discharge is piped away from the object to a safe point of discharge, provision is made for properly draining the piping.

91.4(3) The size of the discharge piping is not reduced from the size of the relief valve.

91.4(4) All discharge piping is comprised of appropriate metallic material identified in ASME Section II.

875—91.5(89) Pipe, valve, and fitting requirements. Pipes, valves, and fittings subject to the effects of galvanic action shall not be used on objects covered by these rules. Dielectric fittings shall be used where dissimilar metals are joined.

875—91.6(89) Repairs and alterations to unfired steam pressure vessels. No single repair of an unfired steam pressure vessel shall involve replacement of more than 50 percent of the OEM's pressure-retaining boundary.

875—91.7(89) Plugging boiler tubes. This rule does not apply to tubes in headers of economizers, evaporators, superheaters, or reheaters.

91.7(1) *General requirements.*

a. Leaky tubes are replaced or plugged.

b. Tube plugs are made of a material that is compatible with the material of the boiler tube being plugged and shall be welded into place or manufactured to be expanded into the tube sheet or drum.

c. The maximum number of tubes that may be plugged shall be the lesser number specified by the OEM or an engineer experienced in boiler design.

d. Documentation of the maximum number of tubes that may be plugged are kept on site, and a copy is supplied to the department by either mail or email.

91.7(2) *Fire tube boilers.*

a. A tube that is adjacent to a plugged tube shall not be plugged.

b. All plugged boiler tubes shall be replaced prior to the next required certificate inspection.

91.7(3) *Water tube boilers, unfired boilers, or process steam generators.* Water wall tubes that form a separation wall between products of combustion and the outside atmosphere or a separation of the gas passes in a multiple gas pass boiler shall not be plugged.

875—91.8(89) Equipment room. This rule applies to existing and new installations except as noted in subrule 91.10(1).

91.8(1) *Clearance requirements.*

a. This paragraph applies to objects installed after December 1, 2022. Minimum clearance on all sides of objects will be 36 inches, or the manufacturer's recommended service clearances if they allow sufficient room for inspection. Where a manufacturer identifies in the installation manual or other document that the unit requires more than 36 inches of service clearance, those dimensions will be followed. Manholes will have five feet of clearance between the manhole opening and any wall, ceiling or piping that would hinder entrance or egress from the object.

b. This paragraph applies to all objects installed after December 1, 2021, and before December 1, 2022. All objects will be installed with the clearances identified in NBIC Part 1.

c. This paragraph applies to objects installed after September 20, 2006, and before December 1, 2021. Minimum clearance on all sides of objects will be 24 inches, or the manufacturer's recommended service clearances if they allow sufficient room for inspection. Where a manufacturer identifies in the installation manual or other document that the unit requires more than 24 inches of service clearance, those dimensions will be followed. Manholes will have five feet of clearance between the manhole opening and any wall, ceiling or piping that would hinder entrance or egress from the object.

d. All objects installed prior to September 20, 2006, will be so located that adequate space is provided for the proper operation, inspection, and necessary maintenance and repair of the object and its appurtenances.

91.8(2) *Conditions required.*

a. The roof, walls and floor of the equipment room will be free from leaks and structurally sound.

b. The equipment room will have drainage adequate to remove standing water from the floor.

c. The equipment room will be free from materials that obstruct access to the objects, their setting, or operation.

d. Storage of flammable material or gasoline-powered equipment in the equipment room is prohibited.

91.8(3) *Exit from equipment room.* This subrule applies to an equipment room exceeding 500 square feet of floor area, containing at least one object, and containing fuel-burning equipment with at least a combined capacity of 1,000,000 Btu per hour or the equivalent electrical heat input. Two means of exit located remotely from one another shall be provided on each elevation for covered equipment rooms. A platform at the top of a single object or other equipment is not considered an elevation.

91.8(4) *Carbon monoxide detector or alarm.* The owner or user shall install and maintain a carbon monoxide detector or alarm in an equipment room where one or more fuel-fired objects are located in accordance with the detector or alarm manufacturer's recommendations.

875—91.9(89) Fall protection. The owner or user shall provide safe access to object parts over four feet high consistent with applicable federal safety regulations.

875—91.10(89) Air and ventilation requirements.

91.10(1) *Notice concerning other rules.* The division and the Iowa department of public safety both enforce requirements concerning air and ventilation. Objects that are covered by both sets of rules must comply with both sets of rules.

91.10(2) *Documentation.* Documentation of compliance with any requirement of this rule will be maintained in the boiler room. However, it is not necessary to maintain documentation of the louvered area.

91.10(3) *National combustion air standards.*

a. Installations. Installations will comply with the edition of NFPA 31, NFPA 54, NFPA 58, NFPA 85, or IMC currently adopted at rule 875—91.1(89) or with the Iowa combustion air standard in subrule 91.13(4). However, compliance with one of the listed NFPA codes constitutes compliance with this rule only if the object burns the fuel covered by the NFPA.

b. Existing objects. An adequate supply of combustion air will be maintained for all objects while in operation. Compliance with the current edition of NFPA 31, NFPA 54, NFPA 58, NFPA 85, or IMC as adopted at rule 875—91.1(89) or with subrule 91.13(4) constitutes compliance with this rule. Compliance with an earlier edition of NFPA 31, NFPA 54, NFPA 58, NFPA 85, or IMC constitutes compliance with this rule. However, compliance with one of the listed NFPA codes constitutes compliance with this rule only if the object burns the fuel covered by the NFPA. Compliance with an earlier version of Iowa's combustion air rule constitutes compliance with this rule. Earlier versions of Iowa's combustion air rule are available from the board's staff upon request.

91.10(4) *Iowa combustion air standard.* A permanent source of outside air will be provided for each room to permit satisfactory combustion of fuel and ventilation if necessary under normal operations. The minimum ventilation for coal, gas, or oil burners in rooms containing objects is based on the Btu per hour, required air, and louvered area. The minimum net louvered area will not be less than 1 square foot. The following table will be used to determine the net louvered area in square feet:

INPUT (Btu per hour)	MINIMUM AIR REQUIRED (cubic feet per minute)	MINIMUM LOUVERED AREA (net square feet)
500,000	125	1.0
1,000,000	250	1.0
2,000,000	500	1.6
3,000,000	750	2.5

INPUT (Btu per hour)	MINIMUM AIR REQUIRED (cubic feet per minute)	MINIMUM LOUVERED AREA (net square feet)
4,000,000	1,000	3.3
5,000,000	1,200	4.1
6,000,000	1,500	5.0
7,000,000	1,750	5.8
8,000,000	2,000	6.6
9,000,000	2,250	7.5
10,000,000	2,500	8.3

When mechanical ventilation is used, the supply of combustion and ventilation air to the objects and the firing device will be interlocked with the fan so the firing device will not operate with the fan off. The velocity of the air through the ventilating fan will not exceed 500 feet per minute, and the total air delivered will be equal to or greater than shown above.

875—91.11(89) Condensate return tank. Condensate return tanks shall be equipped with at least two vents or a vent and overflow pipe to protect against a loose float plugging a single connection.

875—91.12(89) Conditions not covered. Any condition not governed by these rules is governed by the construction or installation code.

875—91.13(89) English language and U.S. customary units required. All documentation supplied for the unit including but not limited to the manufacturers' data report, drawings, parts lists, installation manuals, and operating manuals shall be in English, and all measurements in U.S. customary units. All pressure gages, thermometers and other controls and safety devices shall also be in U.S. customary units.

875—91.14(89) National Board registration. Except for cast iron boilers and cast aluminum boilers, all objects shall be registered with the National Board.

875—91.15(89) ASME stamp. All objects shall bear the appropriate ASME stamp. Objects shall not be utilized in a manner inconsistent with the stamp.

These rules are intended to implement Iowa Code chapter 89.